

Pre-Cal section 4.3 Logarithmic Properties

Lesson 099 | Algebra II | Logarithms and their properties

<https://www.youtube.com/watch?v=kKH18skfBwI>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Graph $y = \log_4(x - (-9)) + 2$. Give domain, vertical asymptote, and two exact points.

02

For positive x and y , expand $\log_7(10x^{12}/y^4)$.

03

For positive x and y , expand $\log_2(13x^4/y^{11})$.

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Name: _____ Date: _____ Show your reasoning.

04

Graph $y = \log_5(x - (-5)) + 13$. Give domain, vertical asymptote, and two exact points.

05

For positive x and y , expand $\log_5(14x^2/y^7)$.

06

For positive x and y , expand $\log_6(12x^3/y^{11})$.

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01

Graph $y = \log_4(x - (-9)) + 2$. Give domain, vertical asymptote, and two exact points.

Argument must be positive: $x > -9$. Asymptote $x = -9$. Since $\log_4(1)=0$ and $\log_4(4)=1$, points are $(-8, 2)$ and $(-5, 3)$.

02

For positive x and y , expand $\log_7(10x^{12}/y^4)$.

Use product, quotient, and power rules: $\log_7(10) + 12\log_7(x) - 4\log_7(y)$.

03

For positive x and y , expand $\log_2(13x^4/y^{11})$.

Use product, quotient, and power rules: $\log_2(13) + 4\log_2(x) - 11\log_2(y)$.

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04

Graph $y = \log_5(x - (-5)) + 13$. Give domain, vertical asymptote, and two exact points.

Argument must be positive: $x > -5$. Asymptote $x = -5$. Since $\log_5(1)=0$ and $\log_5(5)=1$, points are $(-4, 13)$ and $(0, 14)$.

05

For positive x and y , expand $\log_5(14x^2/y^7)$.

Use product, quotient, and power rules: $\log_5(14) + 2\log_5(x) - 7\log_5(y)$.

06

For positive x and y , expand $\log_6(12x^3/y^{11})$.

Use product, quotient, and power rules: $\log_6(12) + 3\log_6(x) - 11\log_6(y)$.